Claims:

1. A method for caching versions of data, comprising:

  storing a first version of data in a first level 1 cache;

  storing a second version of data in a second level 1 cache; and

  storing the first version of data in a level 2 cache.

2. The method according to claim 1, further comprising invalidating the second level 1 cache when the second version of data is no longer being used by an execution unit.

3. The method according to claim 1, further comprising including a version tag with a read request to the level 2 cache.

4. The method according to claim 1, further comprising copying data from a location in the level 2 cache to a location in a level 2 cache backup.

5. The method according to claim 4, further comprising associating a version tag with the data copied to the location in the level 2 cache backup.

6. The method according to claim 4, further comprising retiring the location in the level 2 cache backup when the data stored in the location is no longer being used by an execution unit.

7. The method according to claim 1, further comprising copying at least a portion of data from the first level 1 cache to the second level 1 cache.

8. The method according to claim 1, further comprising copying at least a portion of data from the first level 1 cache to the level 2 cache.

9. The method according to claim 1, further comprising updating a version tag in the first level 1 cache when data is stored in the second level 1 cache and not stored in the first level 1 cache.

10. The method according to claim 1, further comprising:

  storing the second version of data in the level 2 cache;

  not storing the second version of data in the first level 1 cache; and

  marking the first level 1 cache as invalid.

11. A streaming processing array, comprising:

  a first execution unit configured to process data and including a first level 1 cache;

a second execution unit configured to process data and including a second level 1 cache; and

a level 2 cache coupled to both the first execution unit and the second execution unit.

12. The streaming processing array of claim 11, further comprising a level 2 cache backup coupled to the level 2 cache.

13. The streaming processing array of claim 12, wherein the level 2 cache is configured to output data to the level 2 cache backup.

14. The streaming processing array of claim 12, further comprising a controller configured to associate a version tag with data stored in each location in the level 2 cache backup.

15. The streaming processing array of claim 14, wherein the controller is configured to retire a location in the level 2 cache backup when a version tag associated with the data stored in the location is no longer being used by an execution unit.

16. The streaming processing array of claim 11, wherein the first level 1 cache is configured to output data to and to receive data from the second level 1 cache.

17. The streaming processing array of claim 11, wherein the first level 1 cache is configured to output data to the level 2 cache.

18. The streaming processing array of claim 11, wherein the streaming processing array resides within a programmable graphics processor.

19. The streaming processing array of claim 18, wherein the programmable graphics processor is coupled to a host computer.

20. A system for processing data, the system comprising:

means for storing a first version of data in a first level 1 cache;

means for storing a second version of data in a second level 1 cache; and

means for storing the first version or the second version of data in a level 2 cache.